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ORIGINAL ARTICLES.

VISIBLE CIRCULATION IN THE RETINAL VESSELS WITH THROMBOSIS OF THE CENTRAL VEIN. WITH REPORT OF A CASE.

BY DR. S. C. AYRES, CINCINNATI.

Visible circulation in the retinal vessels was first described by Prof. Von Jaeger at the very dawn of the present era of ophthalmology. He saw as much with his clumsy old ophthalmoscope as modern oculists can see with instruments of the most approved and recent pattern. His infinite patience and painstaking have given us ophthalmoscopic pictures of eye grounds which have never been excelled for accuracy or excellence of execution. When, therefore, he describes the phenomenon we may rely upon his statements as correct, He describes the circulation in both veins and arteries as if fine sand were passing through a glass-tube. This appearance changed into that of granular masses in transparent fluid and finally into cylinders. These cylinders could be seen moving along, sometimes rapidly, then more slowly, and finally all motion ceased, only to begin again after a longer or shorter interval.

His cases, however, do not seem to be associated with pathological conditions, such as are described by later observers, as vision was restored, but to depend on some mechanical interference with the retinal circulation. Graefe, Liebreich, Schweigger and others have recorded cases of visible circulation in the retinal vessels.

In the *Archives of Ophthalmology* of 1881, page 138, Dr. Peter A. Callen, of New York, reports a case of peculiar circulation in the retinal arteries and veins. It was in a person 66 years of age, and the blindness came on at night. At first there was total blindness, but later on he could see a light in the lower and outer portion of the field. The vessels were somewhat reduced in size, and in this respect it differs from other cases. He says. "It appears as if the red and white discs were rapidly coursing through both arteries and veins. The white spaces were only half the length of the red; the red being about twice the diameter of the vessel in which it ran." He says: "It was not a case of embolism, but rather one of retro-bulbar compression of the optic nerve within its sheath, due to inflammatory products." Patient was able to count fingers at two feet in the lower and outer field.

In the "Transactions of the American Ophthalmological Society" 1884, page 690, Dr. Schell, of Philadelphia, describes a case of visible circulation in the veins and arteries seen by him. It was in a female, 71 years of age, who gave a history of sudden blindness. The retinal vessels were attenuated and "the veins very much more swollen than the arteries." The blood stream which flowed out from the disc was broken into numerous very short cylinders; and it could be seen returning by the veins, broken in the same way. This movement of both arterial and venous blood was plainly visible for a period of nineteen days, when it ceased and the vessels became very thin.

REPORT OF CASE.

W. W. H,, aged 48, well nourished and in active business life. He has suffered for the past ten years with migraine, and has

had repeated attacks of gout in the big toe. During one of these attacks, nine days ago, when he rose from the couch on which he was lying, to go to the adjoining room, his right eye became suddenly entirely blind. He said it seemed as if a thick pad had been placed over it. He did not suffer from dizziness at the time. He had recently had several attacks of transient blindness in this eye. The obscuration of vision lasted but a short time and then the eye cleard up again. But this time the blindness remained permanently and when I first examined him there was only perception of light in the lower and outer field and the pupil was moderately dilated.

The ophthalmascopic picture was as follows:

The central portion of the retina was œdematous and opaque through which the cherry-red macula lutea showed clearly defined. The optic disc was cloudy and somewhat indistinct. The arteries and their branches could be seen although they were not as full as normal. There was no point where a retinal artery seemed to be plugged or obliterated.

There was a hæmorrhage about two Ds below the disc, and one a short distance above the macula.

The main trunks of the veins were all very much dilated. The main trunk below which goes towards the macula was enormously dilated.

The most interesting feature was the visible motion of the blood in the *veins* as it came towards the optic disc. I first noticed this phenomenon in the branches near the disc, but upon closer examination found that it could be traced to the smaller branches out as far as the equator, both above and below. The blood column was divided by white spaces which were about one-third or one-fourth the length of the red spaces. The flow was continuous without pulsation.

There was no motion of the blood visible in the arteries. They appeared nearly normal, not quite as full as in the fellow eye.

A week later I saw my patient and the veins were abnormally distended, but all motion in them had ceased. The disc was pale and the œdema of the retina had disappeared. The

hæmorrhages were absorbing and there was still feint perception of light in a small area of the field.

I have described this as a case of thrombosis of the central vein. Certainly it was *not* an embolism, although there were present the œdematous retina, the cherry-red macula lutea and the sudden loss of vision. The central retinal artery was not plugged nor were any of its branches so far as they could be seen.

Gowers says that "in thrombosis of the retinal vein the loss of sight is less complete them in embolism of the artery, and the opthalmoscopic appearance differs in that the arteries, as a rule, although they may be slightly narrowed, are not empty, or filiform, in the enormous dilatation of the veins—and in the circumstance that venous pulsation can usually be observed, and that the veins may appear interrupted here and there." This description seems to coincide very accurately with my case. The sight was not totally lost, there was perception of light in one portion of the field, the main trunks of the veins going upward and downard were enormously distended, presenting a sausage-like appearance as described by Michel, and the arteries were partially filled.

ALBUMENURIC NEURO-RETINITIS IN PREGNANCY AND ITS TREATMENT.

BY L. R. CULBERTSON, M.D., ZANESVILLE, OHIO.

Oculist to the City Hospital; United States Pension Bureau, etc.

Albumenuric neuro-retinitis during pregnancy is a most grave affection which comes frequently to the notice of the oculist as well as of the general practitioner. S. C. Ayres in the Cincinnati *Lancet and Clinic* says, that "in cases of Bright's disease, whether puerperal or non-puerperal 8% suffer from albumenuric retinitis.,' The percentage of blindness or partial blindness is very high in this affection. As to the mortality form puerperal albumenuria, we will quote M. Imbert Goubeyre (Cazeaux Midwifery), who says, "of 65 cases of puerperal albumenuria unaccompanied with eclampsia, 21 proved fatal during pregnancy and lying in; and six from the third to the fourteenth month after delievery; 5 cases became chronic and were found to be still existent, two, eight, ten and fourteen months, and seven years after labor." J. H. Wilson, in "Transactions International Medical Congress," 1887, citing Rosentein, says that "nephritis occurs once in every 136 cases of pregnancy."

I will first report a very interesting case now under my observation and will then give statistics of this disease. Mrs. H. C., aged 36 years; a primipara; no specific discase; strong and healthy; married first cousin. At the beginning of the seventh month she consulted me with regard to her eyes, stating that objects were blurred and appeared green in color, and that she saw flashes of white light before her. On ophthalmoscopic examination, I found both discs and retinæ hazy, due to albumenuric neuro-retinitis. On examination, the urine was found to contain three-fourths albumen. The microscopic examina-

tion showed the urine to be loaded with hyaline, epithelial and a few opaque granular tube casts and large quantities of renal epithelium. The heart was normal; the legs somewhat dropsical; infiltration of the cellular tissue of the orbits with slight albumenuric retinitis of the right eye. I prescribed vapor baths, milk diet, strychnia, recumbent posture in a dark room, tr. iron chloride xx gtt. every four hours, cream of tartar and jalap, and later saline cathartics. Dr. Theophilus Parvin, of Philadelphia, advised me to use milk diet and warm baths. Dr. Thad. A. Reamy, of Cincinnati, O., said, "if the case goes to term, the woman will almost certainly be permanently blind. If the eyes can be saved, *induce the delivery at once.* Your treatment has been faultless; up to the highest standard." Dr. Tod Gilliam, of Columbus, O., said, that "the prognosis in these cases was very grave," and prescribed Basham's mixture every three hours. Dr. J. C. Da Costa, of Philadelphia, Pa., (the obstetrician) advised "milk diet and acetate of potash in xx gr. doses every three hours,—which was used with benefit for some time—and if this does not make a great improvement in two weeks, bring on labor."

Drs. Bell and Holston, of Zanesville, advised premature labor.

Labor was induced by Dr. J. G. F. Holston, the eminent surgeon and obstetrician, and the patient had an easy labor, and no convulsions. The child lived a week and died of pneumonia. For the first week after delivery, the albumen was one-half by volume, and numbers of tube casts were found in the urine. She was then taking tr. iron, sweet spts. of nitre, acetate of potash and occasionally digitalis. Her vision had not improved any up to that time, and she could not even count fingers, with either eye, at a distance of six inches. Seven days after delivery, I put her on mercurial ointment, rubbed into the arm-pits and groins twice daily, using about three-fourths of a teaspoonful each time. I also, gave v gr. of iodide of potassium three times daily which was soon increased to vij gr. I, further gave $^1/_{30}$ gr. of sulphate of strychnia three times daily, which was increased to $^1/_{20}$ gr. in seven days. The

last three medicines were given for the eyes, but I have reason to believe that the mercury and iodides exerted a beneficial effect on the kidneys in this case, as the albumen began to diminish as soon as we commenced their use. The albumen now equals one-seventh to one-eighth, and for one week there have been no tube casts nor any renal epithelium. The mercury was pushed to the point of touching the gums. As soon as this point was reached, there commenced a remarkable improvement in the vision. To-day--five weeks since labor—near vision. R. E.=$^{5}/_{xxx}$ Sn., L. E.=$^{8}/_{xxx}$ Sn.

The patient is a musician and a very emotional woman, and hence we deemed it advisable not to tell her of the death of her child until we could get considerable improvement in her vision, as the shock might make her vision worse It could do this in two ways; first, by the shock causing the kidneys to act less freely and increasing the engorgement of the veins of the retina and thereby causing great danger of apoplexy of the retina; secondly, the diminished action of the kidneys would increase the uraemia and consequently increase the neuro-retinitis. In albumenuric retinitis the vessels of the retina are always very brittle and therfore retinal hæmorrhages are very common in this affection. The child was removed from the mother under the plea that the mercury and strychnia would kill it, and hence it must be nursed by a wet nurse. Three weeks after its death we told her of its death, and her sight was not affected by it.

I wish to emphasize the importance of keeping from patients suffering from albumenuric retinitis every thing that would cause mental worry or shock, as anything that causes nervousness aggravates the disease of the kidneys, and is of additional danger to the eyes. This patient does not yet know that she has kidney disease. The only oculist consulted was Prof. William Thompson, of Philadelphia, who concurred with we as to treatment and further advised cupping over the loins, followed by counter-irritation with spts. of turpentine, and then by a poultice of digitalis leaves. This is a very beneficial treatment.

The patient is now taking Basham's mixture, potassium iodide, and strychnine, with daily sponge baths of alcohol. The greatest danger in this affection is that the neuritis will result in optic atrophy hence I advise the use of absorbents and strychnia for some time after recovery of sight, and the strictest watch over the condition of the kidneys and skin for years after. If the Bright's disease is combined with valvular heart disease, look, after the condition of the heart, giving digitalis, etc; if there is the "booming second sound" of the heart and high arterial tension (symptoms diagnostic of contracted kidney)[1] give long courses of nitro-glycerine or bi-chloride of gold and sodium, as advised by Prof. Robert Bartholow, of Philadelphia; also, diuretics of Vichy, Carlsbad, Lithia, etc

I desire to point out that nitro glycerine must not be given until several months after recovery from the acute stage, as there is danger that the greater volume of blood caused by its use might produce retinal hæmorrhage.

I will keep this patient in a darkened room for at least a month continuing strychnine and iodide and, if indicated, mercury. Give dark glasses when patients first go into the light, to be worn for some time. Should there be optic nerve atrophy in these cases, the same treatment is indicated, only that the strcychnine should be given hypodermatically in the temples, and phosphorus in some form should be given internally.

In closing my remarks as to the treatment, I will say that I deem it advisable to try medicine for a very short time, but if there is not a very marked improvement, bring on premature labor in the interests of the mother's sight, and perhaps of her life. Had this case gone to term, she would have almost certainly died in labor; and, had she lived, she would have been permanently blind. Blindness is not the only danger in these cases, as some become deaf, which, however, is a

[1]The consensus of opinion of almost all writers is that where there is albumenuric retinitis there is hypertrophy of the left ventricle and sclerosis of the arteries. This is corroborated by autopsies.

rare occurrence, (a case reported by J. H. Wilson, in the Transactions of the Ninth International Medical Congress, became permanently and almost totally deaf), others become paralyzed (Macgregor in *British Medical Journal*, for 1892), and some become insane (Cazeaux). My patient was slightly deaf before delivery, but hearing is normal now.

Some (Cazeaux) have held that albumenuria may be due to pressure of the uterus on the vena cava, or the aorta, or both. (A. F. King, *American Journal of Obstetrics*, 1887, Nos. 3 and). If this be true, the patient should improve very rapidly after delivery. (Braun found in 12 autopsies after death from puerperal eclampsia that there was "cyanotic kidney" due to impeded return of blood from the renal veins caused by pressure of the gravid uterus). Where tube casts persist in the urine, the prognosis is extremely grave.

I think it advisable for all physicans to caution mothers to have their daughter's urine examined before they contemplate matrimony.

REMARKS.

The ophthalmoscopic appearance of the retina according to Juler ("Ophthalmic Science and Practice) is as follows:

1. "White spots or patches as small as a pin's head, more or less collected into groups around the yellow spot. Sometimes there are seen white or yellowish-white straiæ, arranged in a radiating manner around the same focus, etc.

2. "Hæmorrhages are usually found; these may be small and point-like, but they are usually striated and torch-like in appearance."

The "choked disc," hazy retinal vessels, characteristic silvery spots on retina, etc., are beautifully shown in De Wecker's and Jaeger's Atlas ("Maladies du Fond de L'Oeuil par De Wecker et Jaeger). The same silvery spots on the retina are found in diabetic retinitis, (H. Culbertson on Glycosuric Retinitis, in Detroit *Lancet* 1880); also, in meningitis and brain tumor. (C. S. Bull in *Opthalmic Review*, 1886). Swanzy ("Dis-

eases of the Eye.") says; "Some of the white spots are caused by fatty degeneration of the outer layers of the retina (the retinal vessels pascing over them), others by hypertrophy of the nerve fibres (the retinal vessels hidden by them). The fine dots about the macula lutea are the result of fatty degeneration of the inner ends of Müellers fibres.

Loring (*Opthalmic Review*, 1882), says of these cases after delivery that, "there was improvement when the menses reappeared." "And in the case of a woman who had albumenuric retinitis in her first pregnancy with failure of sight in one eye, the sight of the same eye failed again in the second pregnancy, and in the third pregnancy the other eye failed." (*Ibid*). L. Howe (AMERICAN JOURNAL OF OPHTHALMOLOGY for 1885.) says, "It seems fair to infer that, induction of labor is warrantable when the retinitis appears in a comparatively early stage of pregnancy and persists in spite of proper treatment, but is not warrantable in the last few weeks, in spite of the greater ease with which it is accomplished, unless the inflammation is unusually severe." The same author gives the opinions of such obstetricians as Prof. Elliot, Prof. Lusk, Prof. Playfair, Dr. Fordyce Barker, etc , all of whom favor early induction of labor. Kilian (L. Howe in AMERICAN JOURNAL OF OPHTHALMOLOGY, 1885), reporting 161 operations in 1883, says that "considerable more than one-half of the children are rescued with the insignificant mortality of one in fifty mothers." Howe (*Ibid.*) in his statistics says that, "when vision begins to be impaired only in the last two weeks of pregnancy, recovery follows almost invariably. Of those described as being in the eighth months or thereabouts when retinitis commences, not one-half recovered and several did not materially improve. Finally, when this began earlier than what was estimated, as the middle of the seventh month, when nature did not interfere by bringing on a miscarriage, and when the patient escaped with her life, it was only to remain blind forever afterwards." In regard to the amount of albumen as an index to the danger, he says: "The presence of a tenth of one per cent is sufficient to attract attention. The presence of one per cent

should excite apprehension, and so great a quantity as two or surely three per cent, is usually an indication of great danger. If diuretics are administered for the disease, and the quantity of water is thereby increased, the proportion of albumen might appear relatively to be diminished, although in reality it remained the same." Risley (*Ophthalmic Review*, 1886), has noticed aphasia and amnesia in these cases.

CASES AND BY WHOM REPORTED.

BLINDNESS.		PARTIAL RECOVERY OF SIGHT.		RECOVERY OF SIGHT.	
Risley (Philadelphia)	2	Wadsworth (Boston)	1	Holmes (Chicago)	1
Hogg (England)	1	McNamara (England)	1		
		Henshaw (England)	1	G. S. Ryerson (Canada)	1
H. Power (England)	1	L. Howe (Buffalo)	2		
		A. Emrys-Jones (Eng.)	7	Macgregor (England)	1
Herter	1	Brecht (Berlin)	1		
Cronyn (Buffalo)	1	T. R. Pooley (N. Y.)	1	Arango (N. Y.)	1
		Moore	1		
Howe (Buffalo)	1	L. Culbertson (Zanesville)	1	——— (of Pittsburgh, Pa.)	1
Sinclair (Boston)	1	Abbott (Boston)	1		
				Risley (Philadelphia)	1
Wilson (Chicago)	1	Auger	1		
	—	Wilson (Chicago)	3		—
			—	Total	6
Total	9	Total	21		
	24.99%		58.31%		16.66%

After making a thorough search of the *Journal of the American Medical Association, Archives of Ophthalmology, Ophthalmic Review, Transactions of the American Ophthalmological*

Association, British Medical Journal, Medical Record, etc., I have formulated the preceding table. This includes only cases of albumenuric retinitis *caused by pregnancy* and *does not* include any cases that had ended fatally at the time they were reported. It must be borne in mind that some cases who recover their sight are not reported by obstetricians.

A CASE OF PUERPERAL ALBUMINURIC NEURO-RETINITIS WITH ENORMOUS AMOUNT OF EXUDATION. RECOVERY. SUBSEQUENT PREGNANCY AND PARTURITION AT TERM WITHOUT URÆMIC SYMPTOMS.

BY ADOLF ALT, M.D.

In conjunction with Dr. L. R. Culbertson's paper in this issue, and considering the general opinion of the fatality in case of conception and parturition after uræmia has been once produced by pregnancy, the following case may be of some interest:

On December 15, 1891, I was called to see Mrs. C. C., aged 26, on account of very poor eyesight. On seeing her I learned that she had been confined of a stout, healthy child two weeks previously by means of forceps, and that she had come very near losing her life. She further stated that her vision had been very poor for two and a half months, and that a month before the birth of the child she had had severe convulsions. During the last weeks she had œdematous swelling of the legs. In spite of all this she had been allowed to carry her child to the end of the term, and no spasms took place during labor, as the husband and nurse stated.

I found her in a very weak condition; yet nursing her baby. Vision was barely $^{8}/_{cc}$ in the L. E. and $^{14}/_{cc}$ in the R. E. The pupils were semi-dilated.

On ophthalmoscopic examination, it seemed at first as if the whole background had assumed a silvery white appearance. On closer examination I found that the periphery of the retina

was free from exudation, but only the periphery. The remaining parts of both retinæ were apparently one mass of exudation, with a few branches of bloodvessels visible, and here and there a striped hæmorrhage.

The diagnosis being clear, without examination of the urine, I reported to her physician the result of my examination, and expressed to him and to her husband my grave fears of total atrophy of the optic nerves. I also impressed on the husband's mind the necessity of preventing any further pregnancy, or of not allowing it to go to full term, in case this unhappy condition should recur.

Her physician, besides giving tonic treatment, ordered two quart-bottles of lithia water a day, and from what I heard, made very light of what I had told the husband.

On August 15, 1892, the patient called on me at my office to see whether glasses would not improve her vision. To my astonishment I found now but comparatively small remnants of the severe former retinal affection. A number of irregularly arranged pigment-spots in the macular region, anæmic optic discs and thin retinal vessels, however, told the tale. Her vision was now R. E. $^{20}/_{LXX}$? and L. E. $^{20}/_{C}$. The vision in the left eye was brought up to $^{20}/_{LXX}$ by + 0.75. I recommended strychnia, which was, however, not used.

On March 5, 1893, patient again called on me, sent by her physician to see whether any new pathological signs could be found in the eyes, as she was again *eight and one-half months* pregnant. She stated that she felt well, but had had a few "dark spells" of late. I found V. in either eye $^{20}/_{LXX}$ +; no albumen in the urine. The ophthalmoscopic picture was unaltered in every respect.

About two weeks later she was confined without trouble; and when I saw her in September, 1893, everything had remained in *statu quo*.

SELECTIONS.

PANNUS.

BY JOHN I. M'GUIGAN, AM., M.D., PHILADELPHIA.

There is scarcely any pathological condition more disturbing to the peace of mind of the oculist than the condition called "Pannus." These cases necessarily represent a relative chronicity and frequently tell the tale of various visits to as many specialists, with varying result as far as the statements of the patients themselves can be taken.

The diagnosis in itself seems to present no difficulty for the trained observer, but the prognosis as to length of time is frequently disappointing to the patient, and the almost everlasting complaints are wearying to the physician.

It takes but a cursory glance at the works on the "Disease of the Eye" to see that the treatment of this condition has been anything but satisfactory as to uniformity of curative measures. Many methods are given and rules laid down only to be denied by equally able authors.

First, as to the pathology, I am inclined to adopt the classification given by Fuchs: "Pannus consists in the new formation of a tissue resembling granulations directly beneath the epithelium of the cornea. Pannus is to be looked upon as an affection of the conjunctival layer of the cornea, and in every case is simply one of the symptoms of a conjunctival disease,—that is, either of conjunctivitis trachomatosa, or conjunctivitis lymphatica. We, hence, make a distinction between pannus trachomatosus and pannus lymphaticus."

Again, "Pannus is a trachomatous affection of that part of the

conjunctiva which covers the cornea." He then enters into a discussion of the pathology, during which he especially calls attention to the frequency of location, at least in the beginning, in the upper portion of the cornea.

Pannus lymphaticus he describes: "Instead of appearing as separate circumscribed foci, the exudate (conjunctivitis lymphatica) may occur under the form of a continuous new formation of tissue upon the surface of the cornea,—that is, under the form of *pannus*. This is called pannus scrofulosus, to distinguish it from trachomatous pannus. It does not, like the latter, show a predilection for the upper part of the cornea, but develops from any spot whatever upon the corneal margin. "The etiology of this latter affection is given in a couple of words," scrofulous diathesis.

The various methods of treatment through which the cases of pannus trachomatosus go may be summed up: scarification of the conjunctiva; incision into the granulations themselves; then cauterization with chemicals, hot iron, galvano-cautery, and excision of a portion of conjunctiva. To cure the existing state of affairs in the cornea some pin their faith to *peritomy*, partial or complete; others go to the extent of using the inoculation method, introducing pus from a case of ophthalmia neonatorum,—a course which Juler condemns: "An acute attack of purulent conjunctvitis is thus developed, and is *sometimes* follows by clearing up of the cornea. Not unfrequently, however, the process is followed by complete destruction of the eye. The contagious and destructive nature of this remedy renders it very objectionable. It should only be adopted as a last resource. Of de Wecker's method there seems to be much diversity of opinion, some, like him, obtaining wonderful results; others partial cures; while others experienced no good from its use.

In treatment of pannus lymphaticus the most important consideration would seem to be hygienic. The proper nourishment and surroundings for the patient are essential. The patient must be kept out-of-doors; the judicious use of baths must be enjoined; while the remedies are codliver-oil, iron,

quinine, and strychnia. Careful attention must be given to bowels and secretions.

I have been interested in and I have seen the effects of these methods given above, except that of using pus from ophthalmia neonatorum, and, like others, I have found there was no uniformity of results,—in other words, each case seemed to be a law unto itself.

In view of these repeated successes and failures my latest case makes me more hopeful of better and more uniform results in the future.

Miss S., 24 years old, came to me complaining of a sore eye. She had had some trouble with the same eye when a child, and she had been cured at Wills Eye Hospital. She was free from trouble until about one year ago, when the right eye began to annoy her periodically. For some months back the difficulty grew much worse,—a distinct patch making its appearance on the inner and lower quadrant of the cornea. This made her shrink from the light, and finally compelled her to wear alternately a patch and smoked glasses, which latter she was now wearing.

Her general appearence reminded one of Bartholow's apt description, "Gelatinous children of albuminous parents." She spoke of recurring tumors in her back. These swellings would grow larger without apparent inflammation, and then they would discharge their contents and continue to run until the "core" was discharged, when healing would take place. She was regular in every way, save that she had periods of obstinate constipation.

On examation I found a distinct pannus covering the inner or nasal half of the cornea, more marked in the lower portion. The upper and lower lid were slightly hyperæmic, but otherwise appeared perfectly healthy. The pupil was minutely contracted.

I placed the patient on syr. ferri iod. and ordered a wash of boric acid, aq. menth. pip., aq. camphoræ, and muc. sassafr. med. On the next visit I began using mild solutions of nitrate of silver, and I ordered her sol. atropiæ

(gr.j to ℥iij) 1 drop once daily. The latter seemed to have no effect, although the iris looked normal. I used a solution of the same strength, thinking she had not put it in,—at least, not properly,—but I got no better result. The pupil did not react to light and shade. Later, I began to use sol. zinci chlor. (gr.v to ℥j), but improvement seemed slow; so I tried tannic acid, of a great variety of strengths, and, the patient growing tired, I resorted to peritomy, with only temporary effect; so I used insufflations of "mild chloride," which seemed to do considerable good for a time. (Previously stopped the iodide.)

About this time I noticed, somewhere in the course of my reading (journal), the suggestion to use papoid in eye diseases. I began to employ this drug in conjunction with the calomel, in the follwing prescription: papoid, gr.v; hydrarg. chlor. mit., ℥j. This was flicked into the eye once daily, using the boric lotion as before.

Slowly the eye began to mend until it grew much clearer, and finally entirely well, the iris in the meantime returned to the natural state of mobility. In the course of four weeks the cornea was restored. During the treatment she experiences no ill effects save a pain in the neighborhood of the caruncle, where the medicament would collect in thin strings, which she would remove from time. Cocaine sol. (4 per cent.) occasionally used relieved this pain. During the whole treatment special attention was given to regulating the bowels.

I regard this case as one of pannus lymphaticus, and I wish to commend this mode of treatment to other practitioners; and, by their and my own further observation, we can determine the value of this remedy to the eye specialist.—*Medical Bulletin.*

PISTOL-BALL WOUND OF THE BRAIN DIVIDING THE LEFT OPTIC NERVE IN THE OPTIC FORAMEN; MENINGITIS; AUTOPSY.[1]

THOMAS G. MORTON, M.D.

John B., aged twenty-nine years, was brought to the Pennsylvania Hospital about seven o'clock in the evening of January 5, 1894. Shortly before admission he received a pistol wound of the face; the ball completely divided the right lower eyelid, penetrated the upper maxillary bone, and passed apparently backward and to the left, when its further course could not be determined The patient was semi-unconscious, but could be roused; he did not seem markedly shocked, but since he had been drinking heavily the symptoms were masked. Temperature was barely 98°, pulse 66, and respiration 24. He gave his name and address, but appeared unable to make further replies. There was moderate hæmorrhage from mouth and nose. Breathing had been heavy, but became easier an hour or so after being placed in bed.

On admission the pupil of right eye was found moderately contracted, but sensitive to light-stimulus; the pupil of the left eye was contracted, but was immovably and widely dilated two hours later; an effort was made to determine the location of the ball by an incision below the eye. Examination of the wound by the introduction of the finger led to the conclusion that the orbit was not involved, but that the ball had passed across through the nasal cavity to the left and had entered the brain, and in its course had injured, if it had not destroyed, the optic nerve.

The following day the patient was taken before the class; he

[1]Read before the Philadelphia Academy of Surgery, February 5, 1894.

was then rational, complained of no pain, and replied to every inquiry. The movements of both eyes were normal; vision was apparently not disturbed in the right eye, large and small objects being distinctly seen; left eye totally blind, pupil widely dilated, yet sensitive when light was thrown upon the right.

January 8. General condition less favorable; difficult to arouse; slightly delirious at night; temperature 103°; pupils constantly varying; right more contracted.

January 10. Somewhat violent at times; temperature 102.5; required to be confined in bed.

January 11. Able to reply to questions, sat up in bed: The following examation was made by Dr. Thomas H. Fenton:

"Right eye. Pupil about 6.5 mm., somewhat oval horizontally, feebly sensitive to light-stimulus.

"Optic disk fair size, somewhat oval vertically, rather dull in color, well outlined, margins slightly elevated; fundus rather deep in color; veins very full; arteries somewhat contracted; media clear, so that all details are possible, but general definition defective owing to the slight haziness of cornea; tension normal.

"Lest eye. Pupil 4mm., not absoluted immobile but not responsive to light-stimulus, either with right eye opened or closed; somewhat sensitive when right is covered. Optic disk fair size and shape; definition very good; the temporal half is leaden white, devoid of vessels; all vessels contracted on the nasal side of disk and throughout fundus, which has distinctly anæmic appearence; arteries very much contracted; no structural change except just below disk margin, where there is a small horizontal hæmorrhage 1mm. in size; media perfectly clear; tension normal; eyes in good position; movements normal. Large ecchymosis on bulbar conjunctiva, temporal side, observed to-day."

January 16. Patient has rapidly failed, delirium has continued since last report, and he died at 11.10 with a temperature of nearly 104°.

POST-MORTEM.—The ball entered the superior maxillary bone just below the orbital rim, about one-eight of an inch to

ths inner side of the infra-orbital foramen, passing upward, backward, and to the left through the nasal cavity, fracturing the ethmoid and vomer; the orbital plate of the frontal bone was fissured, destruction of left olfactory, breaking through the body ot the sphenoid, tearing away the lesser wing on the left side, completely severing the left optic nerve in its groove or foramen; the ball then passed into the left frontal lobe, where it was found just inside a large wound which continued upward and slightly backward and penetrated nearly to the upper surface of the brain.

The brain tissue in and around this wound was softened and degenerated. Several fragments of bone were carried in to the brain substance by the ball, which was flattened and very rough. Evidence of suppurative meningitis existed over the entire base of the brain, and the vessels of the pia mater were markedly congested.

REMARKS BY DR. FENTON.—The case as reported by Dr. Morton is not only interesting because of its extreme rarity, but besause it affords an opportunity for conjoined study by the surgeon and the ophthalmologist. Nearly all the reference obtainable by a careful search of the literature of wounds of the optic nerve have been studied, and no case exactly parallel has been found. The question of main importance in this part of the record is, as to how far the extent of the injury can be determined and the foreign body located by an examination of the eye. That such examination somewhat lessened the obscurity in this case seems reasonable. The patient gave a very credible history of previous good vision in the left eye, which yet was found to be completely amblyopic; while the right, in which some disturbance was to be expected, was practically uninjured. A valuable observation made by Dr. Claytor, the resident, is that on the date of admission, January 5. at 7 P.M., the pupils were of equal size, and that two hours later the right was contracted and the left widely dilated. The eyes were in good position, the associated movements were normal, no loss of motility no impairment of sensibility, no surface anæsthesia, no hyperæsthesia. Externally, then,

there was nothing but the inequality of the pupils, and the ecchymosis of the bulbar conjunctiva in the left to serve as a guide. It must be remembered that the first examination which could be secured was made five and a half days after the injury. It is reserved for the opthalmoscope to give some suggestion as to the scope of injury and the direction taken by the bullet; more especially because the atrophy, though not complete, was clearly of recent origin, and not the result of long-standing disease. This suggested that there had certainly occurred, as stated at the time, a hæmorrhage into the sheath, and, in all probability, a nearly complete division of the nerve. This view was further confirmed by an examination made on the morning, and again on the evening of the 14, when it was found that the vessels were still more thread-like and the optic disk paler; right pupil oval as before, 6 mm., left 8 mm., circular. It seemed quite certain, therefore, that the point of injury was quite well back, because, as Fuchs says; "It is only when the optic nerve has been injured so far forward that the central vessels are at the same time divided that characteristic opthalmoscopic symptoms can be made out at once. In such cases there develops immediately after the injury a picture analogous to that of embolism of the central artery. The arteries of the papilla and the retina are bloodless, the retina soon becomes clouded—a sign of its death." As then expressed, the examination of the eye externally and internally seemed to favor the surmise that the tract of the bullet was to the left and upward, rather than backward and downward, although the precise route and the extent of the injury occasioned by its passage could not be determined. The occular state certainly did not suggest trouble at the base. An interesting case strengthening this belief is furnished by Benson: "Perforating gunshout wound of the right eye. Immediate collapse of ball—follwed in a few seconds by complete amblyopia of the left eye. Opthalmoscope showed a simple atrophy with no thickening of the coats of the vessels, which were very small. * * * There were no symptoms of central mischief."

It is evident that the most important appearence in this case was the peculiar condition of the optic nerve and retina; although the disturbance of the pupils seemed to indicate some injury to the oculo-motor and the fifth nerve. This lent more credit to the case because, as Mitchell says (Injuries to the Nerves): "Muscular injuries of the motor nerve of the eye which do not at once involve loss of life, are rare." It is interesting to add that this quotation is taken from an account given of a case seen by the author in consultation with Dr. Morton, in which he, the author, states that the case stands alone in the history of oculo-motor-nerve lesions.—*Medical and Surgigal Reporter.*

A CASE OF SPONTANEOUS ABSORPTION OF A CATARACTOUS LENS.[1]

T. B. SCHNEIDEMAN, M.D.

Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic; Assistant Surgeon to Wills Eye Hospital; Oculist to St. Christopher's Hospital Dispensary.

A. B., aged 65 years, male; vision of the left eye began to grow dim twenty years ago. The dimness increased until he became entirely blind in that eye, two years after the trouble began. Has never had pain, injury, nor inflammation in the eye. At Wills Eye Hospital, which institution he visited at that time, one of the surgeons informed him that he had a cataract and advised operation for its removal, but the patient did not consent on account of the excellent vision which he enjoyed with the other eye.

The blind eye remained in the same condition, so far as the patient knows, until five years ago, when he observed a slight improvement. The sight continued to improve slowly, so that he was again able to distinguish large objects, the entire course being unattended with any pain.

PRESENT CONDITION. — Eye of normal appearance externally; pupil round and reacts to light and convergence. Iris markedly tremulous with the movements of the eyeball. Fundus reflex of normal intensity throughout the region of the pupil, except at the upper part where it is concealed by a dense gray membranous opacity. Closer examination shows that this membrane is freely movable, the lower extremity floating behind the iris, the upper portion being attached above. The membrane is evidently the remains of the capsule of the lens. There were a few small opacities in the vitreous, the rapidity of

[1]Read before the Philadelphia County Medical Society, March 14, 1894.

their movements proving that structure to have become fluid. The fundus was distinctly visible in all its details, and could be seen with a convex lens (+ 11). The nerve is decidedly pale and presents a shallow cup; the vessels are narrow and fewer than in health. The nerve is evidently atrophic. With + 11 the vision equals $^{12}/_{cc}$. The organ in its present condition presents exactly the appearance of an eye operated upon successfully by discission.

The best attainable vision with the correcting lens is low, but this is due to disease (atrophy) of the optic nerve and not to opacity of the media. Low as is the vision, if the case had been operated upon the result would still have been counted a success.

The interest in this case attaches chiefly to two points: 1. Complete absorption of the lens, together with its nucleus; occuring in a subject of the age of this patient; and 2. That this process should have gone on to completion without the supervention of glaucoma. Dislocation of an opaque lens is met with not infrequently, but the organ is found unaltered, at least as to the nucleus, years after the luxation has occurrcd, its presence in the anterior chamber causing repeated and destructive attacks of inflammation from the increase of tension to which it gives rise.

Absorption is, of course, the rule in the youthful eye when the fluid of the anterior chamber is permitted to gain access to the substance of the lens proper—a fact which is taken advantage of in the operation of discission. The infrequency of this occurrence in the adult eye is shown by the unsuccessful attempts of Beer to apply the same procedure to such eyes before the indications for the operation had been established; of twenty.nine eyes subjected to the operation, success was attained in only a single case.

The possibility of rupture of the zonula is greater where the lens has become opaque, because this structure participates in the degenerative changes which the whole lens system undergoes; and the more advanced these changes the greater likelihood of such an occurrence, as in hypermature cataract with

considerable shrinking and atrophy of the organ. Such shrinking of itself exerts traction upon the suspensory ligament, and such traction may well be partial and affect one portion of the circumference more than the rest, which yields at that point; in the case reported this point was situated at the inferior attachment.

The fluid condition of the vitreous noted was probably an important factor in bringing about the result; this condition may very likely have existed prior to the lesion of the suspensory liagment, the lens having lost some of the support posteriorly and normally furnished by the contents of the vitreous chamber in consequence of the alteration in that structure.

The text-books refer to dislocation of the lens as a late event in the history of cataract. Thus Fuchs observes: "The shrinking of the hypermature cataract affects not only its thickness, but also its equatorial diameter. In proportion as the latter diminishes in size, the zonula of Zinn is stretched, and thereupon undergoes a corresponding atrophy of its fibres. Consequently, the attachment of the lens becomes imperfect. Spontaneous luxation of the lens may take place through partial or total rupture of the zonula, * * *" Again, after remarking "that spontaneous restoration of sight is extremely rare in senile cataract with a hard nucleus," he admits the possibility of such occurrence in three ways: By the resorption in the exceptional cases not only of the cortex, but also of the nucleus to such an extent that nothing but slight opacities remain. The other possibilities to which he refers are the formation of a Morgagnian cataract and spontaneous dislocation of the lens, but without absorption.

Soelberg Wells speaks of dislocation due to gradual relaxation or elongation of suspensory ligament, or its partial rupture. In such a condition, he adds, a very slight shock to the eye, which may have been unnoticed by the patient, will produce dislocation of the lens.

Berry (*Diseases of the Eye*, p. 100) speaks as follows: "After the condition of maturity has existed for a longer or for a shorter time, further changes may take place, which are char-

acterized as stages of hypermaturity. The opaque cortical substance may to some extent shrivel from loss of fluid, and in this way a little of the sight—as a rule, only a very little—be regained."

The gradual improvement of the vision raises the question whether the lens was actually dislocated or whether the rupture extended into the anterior capsule, giving access to the aqueous humor, causing gradual absorption of that organ as in the operative procedure of discission, or whether the improvement can be explained by the solution of the opaque lens after dislocation into the anterior chamber. The latter is the position usually occupied by the lens after luxation.

Perhaps the gradual improvement observed by the patient depended upon a partial displacement of the opacity. This cannot be determined with certainty; the patient did not come under observation until the process, whatever its exact nature may have been, had gone on to completion. In any event complete absorption of the lens in the adult is a rare termination of cataract.—*Med. and Surg. Rep.*

PERSISTENT PUPILLARY MEMBRANE ASSOCIATED WITH ATROPHY OF CHOROID AND OPTIC NERVE.

BY S. LATIMER PHILIPPS, M.D., SAVANNAH, GA.

While to the anatomist and clinician the congenital defects of the human organism are extremely interesting, to the possessor they are not so agreeable, particularly as, in the majority of cases, they are incurable.

As all of the organs of the human body are exposed to these defects more or less, the eyes naturally come in for their share. These are made the more interesting from the latter-day anatomical and microscopical examinations.

In Germany such men as Manz, Deutschmann, C. Hess, Schweigger, Vossius, etc., have written most instructively upon this subject during recent years.

Of this class of congenital troubles none is more interesting than that peculiar condition known as persistent pupillary membrane. It may take any form, from a thin cord across pupil, to complete occlusion of same. Recently a case of the former came under my observation, which I deem of sufficient interest to report. It is rather rare that we find these defects, and then generally by accident. Most of the text-books pass this subject over without a word, but a few such as Noyes[1], Galezowski[2], Fuchs[3], Schmidt-Rimpler[4], give it a mere mention.

My case was that of a man, thirty-three years of age, who

[1]Diseases of the Eye.

[2]Traitè des Maladies des Yeux.

[3]Lehrbuch der Augenheilkunde.

[4]Augenheilkunde und Ophthalmoskopie.

had consulted me for some throat trouble, and who incidentally mentioned that his vision in the left eye was very poor. He was a splendidly developed man, in every way, save that defect of the eye.

His weight was one hundred and eighty pounds, with height of six feet. Irides gray. On superficial examination I could detect nothing wrong about the eye. Since his earliest remembrance vision has been bad in the left eye, and being aware of this he never had his eyes examined before, taking it as a matter of course. R. V.=$^{20}/_{xx}$ L.=$^{20}/_{c}$, with the left eye he can read J. No. 12 with difficulty. On throwing light into pupil with the ophthalmoscope, I noticed a thin dark line running diagonally across the pupil which at first looked like a striation in the lens. On a more careful inspection this proved to be a thin thread inserted into the iris, just beyond the edge of the pupil, in the lesser iridic circle. The temporal attachment being just above the equatorial line, the nasal being about the middle and lower quadrant of iris. The anterior chamber was normal in depth; the iris in its position. The pupil responded to light as any ordinary pupil would. It readily dilated under the influence of a 4 per cent sol. of cocaine, being perfectly round with no attachment to the capsule of the lens, or any irregularities whatever. The thread seemed to be elastic, and as the pupil dilated, it seemed to stretch and become thinner. There was no other evidence of a membrane in the pupil. On looking at the fundus I found quite an extensive spot of central choroidal atrophy, with atrophy of the upper third of the papilla. Otherwise the fundus was normal. The atrophy of the choroid and optic nerve might have been coincident with, or independent of the pupillar membrane, but the fact that he had never had iritis or any inflammatory condition of the eye in his remembrance would lead us to believe that this was congenital also.

Some times the thread becomes attached to the posterior layer of the cornea, as in a case of much interest, reported by Prof. Vossius of Giesen[5]. A twelve year old boy suffering with blepharitis, phlyctens and pannus of a scrofulous nature

was brought to his clinic, where he remained under observation and treatment for many weeks.

He had intense photophobia, diffuse clouding of the cornea with vascularization and roughening of the epithelium, but no loss of substance. After clearing up of the cornea, in its deeper layers, at the center, was noticed a circumscribed, round, grayish white clouding, the size of a small pinhead, to which was attached the iris by a thin tense, long, gray brown thread. It had its origin in the tissue of the iris near the pupillary margin. The depth of the outer chamber was normal and the color of the iris unchanged. The iris was in its natural position, and not drawn toward the cornea at all by the synechia. The pupil was round with good reaction and could be fully expanded by atropia, showing no adhesions between capsule and iris; in fact there was absence of all signs of the synechia having been the sequel of an iritis or perforating ulcer of the cornea. By the examination with the Zehender-Westien loop the gray-brown thread was found to consist of three small, short threads which sprung out of the iris tissue in the region of the lesser circle, these little threads united themselves into a roundish gray tubercle, from which again sprung two very fine 2 to 3 m. long threads, which were inserted into the gray corneal cloud mentioned above. Without the loop these appeared as one cord.

Samelson[1] reports a case somewhat similar, a young girl twenty years old, having some seventeen to eighteen of these threads joining the iris to cornea.

In looking for the cause of these malformations, it is impossible to say whether they are due to some inflammatory condition during the uterine life analogous to those we find after birth, or to some unknown influence working during embryonic life, though often the latter would seem to be the more reasonable.—*Atlanta Medical and Surgical Journal.*

[5]Zur Kasuistik der Angeborenen Anomalien des Auges; Beitrage Zur Augenhfilkunde, ix. Heft, S. 9.

REVIEWS.

A TEXT-BOOK ON DISEASES OF THE EYE. By HENRY D. NOYES, A.M., M.D. Complete in one octavo volume of 816 pages, profusely illustrated with 269 wood-engravings in the text, five chromo-lithographic plates, and ten plates black and colors. Second Revised Edition. Price, cloth $6.00; leather, $7.00. New York: William Wood & Company. St. Louis: J. H. Chambers & Co., 914 Locust Street.

Among the many new text-books on diseases of the eye which have of late appeared, this is undoubtedly one of the best. It combines a thorough knowledge of the vast ophthalmological literature with an equally large personal experience. We had occasion to bestow a similar praise on the first edition of this work and we can only add, that this, the second edition, is still more highly to be recommended.

ANOMALIES OF REFRACTION AND OF THE MUSCLES OF THE EYE. By F. B. TIFFANY, M,D., Professor of Ophthalmology and Otology in the University Medical College of Kansas City, etc. Author's Edition. 1894. Kansas City: Hudson-Kimberley Publishing Co. St. Louis: J. H. Chambers & Co., 914 Locust Street.

This book contains, besides pictures of Helmholtz, Donders and Landolt, 187 illustrations and a number of plates. It gives a clear account of the subjects it treats on. To the impartial reader the almost total absence of reference to the literature in this department and the resulting apparent originality of the author, when he simply details the results of researches of others, are rather astonishing. Aside from this the book is worth reading. ALT.

OBITUARY.

ANTONIO QUAGLINO +.

Doctor Antonio Quaglino, Professor of Ophthalmology and one of the best in our specialty, died a short time ago, at the age of 76 years.

He studied medicine at the University of Pavia, and from 1833 to 1845 he was assistant to Professor Flarer. Afterwards he settled in Milan, and in 1854 he was made director of the ophthalmic wards in the hospital of that city. In 1859 he published the first ophthalmoscopic atlas, which has appeared in Italy; and in 1860 he was called to the chair of ophthalmology in the Faculty of Pavia. His publications are numerous. Among them we cite his treatise: *On the amauroses of ganglionic and encephalo-spinal origin* (1861); and his translation of the celebrated book by Donders: *On the anomalies of the refraction and accommodation of the human eye* (1866). In 1876 he invented the operation of sclerotomy for curing glaucoma. Nine years previously he had been one of the warm partisans of the use of the calabar-bean in this affection.

Quaglino advocated the use of injections of calomel into the temple in syphilitic affections of the eye and in 1872 at the Congress in London, he warmly recommended the cauterization of the lachrymal sac in the treatment of the grave forms of dakryocystitis.

We see, that Quaglino's conceptions were correct and that his ideas, altered by the modifications which progress always brings about, have actually become the current ones.

In 1891 he founded the *Annali di Ottalmologia*, a journal which is now very prosperous in the hands of Rampoldi and Guaita.

In 1880 he was elected its President by the International Congress convening in Milan. For three years he was the Dean of the Medical Faculty of Pavia, and he was a corresponding member of the scientific and literary Institute of Lombardy and of the medico-chirurgical Academies of Turino, Palermo and Ferrara.—*Annales d'oculistique.*